

Financial Math

Course Number: MA2007

Grade level: 9–12

Credits: 1.0

Prerequisite Courses: None

Course Description

Connecting practical mathematical concepts to personal and business settings, MA2007 offers informative and highly useful lessons that challenge students to gain a deeper understanding of financial math. Relevant, project-based learning activities cover stimulating topics such as personal financial planning, budgeting and wise spending, banking, paying taxes, the importance of insurance, long-term investing, buying a house, consumer loans, economic principles, traveling abroad, starting a business, and analyzing business data. Offered as a two-semester course for high school students, this course encourages mastery of math skill sets, including percentages, proportions, data analysis, linear systems, and exponential functions.

Course Objectives

Throughout the course, you will meet the following goals:

- Apply the basics of personal finance to real-world situations
- Understand the rules and regulations of federal and state taxes
- Use statistics to make data-based financial decisions
- Understand economics from a global and small-business standpoint
- Distinguish between various forms of debt and credit and analyze each
- Calculate return on various forms of investments

Student Expectations

This course requires the same level of commitment from you as a traditional classroom course would. Throughout the course, you are expected to spend approximately 5–7 hours per week online on the following activities:

- Interactive lessons that include a mixture of instructional videos and tasks
- Assignments in which you apply and extend learning in each lesson
- Assessments including quizzes, tests, and cumulative exams

Communication

Your teacher will communicate with you regularly through discussions, e-mail, chat, and system announcements. Through this communication with your teacher, you will monitor your progress through the course and improve your learning by reviewing material that was challenging for you.

You will also communicate with classmates, either via online tools or face-to-face, as you do the following:

- Collaborate on projects
- Ask and answer questions in your peer group
- Develop speaking and listening skills

Grading Policy

You will be graded on the work you do online and the work you submit electronically to your teacher. The weighting for each category of graded activity is listed below.

Assignments	10%
Essays	0%
Lesson Quizzes	20%
Unit Tests	50%
Cumulative Exams	20%
Additional	0%

Scope and Sequence

When you log into the Virtual Classroom, you can view the entire course map, which provides a scope and sequence of all topics you will study. Clicking a lesson's link in the course map leads to a page listing instructional activities, assignments, and learning objectives specific to that lesson. The units of study are summarized below.

- Unit 1:** Personal Financial Planning
- Unit 2:** Income
- Unit 3:** Budgeting and Wise Spending
- Unit 4:** Banking
- Unit 5:** Paying Taxes
- Unit 6:** The Importance of Insurance
- Unit 7:** Long-term Investing
- Unit 8:** Buying a House
- Unit 9:** Consumer Loans
- Unit 10:** Consumer Credit
- Unit 11:** Consumer Debt
- Unit 12:** Economic Principles
- Unit 13:** Traveling Abroad
- Unit 14:** Starting a Business
- Unit 15:** Analyzing Business Data

Unit	Lesson	Lesson Objectives
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Personal Financial Planning**The Financial Plan**

- Analyze data, including spreadsheets, as it relates to financial planning.
- Describe components of a financial plan.
- Summarize various responsibilities for personal financial decisions.

Career Planning

- Analyze criteria for selecting a career.
- Correlate the relationship between career choices and financial stability.
- Identify the impact of career choices on both income and financial stability.

Trends in the Marketplace

- Evaluate career options using data.
- Identify trends in the labor market that affect career planning.

Net Worth

- Calculate net worth.
- Determine the difference between an asset and a liability.

Financial Goals

- Demonstrate how income and personal goals affect financial planning and decisions.
- Modify an existing financial plan based on changes in income or personal goals.

Making Connections: Selecting a Career

- Complete two student career interest inventories.
- Investigate the eight components of the two selected careers of interest.

Income**Sources of Income**

- Analyze the benefits of different types of income.
- Calculate hourly and salary wages.
- List various sources of income.

Variable Earnings

- Calculate variable earnings.
- Compare earnings by interpreting data.

Gross Pay vs. Net Pay

- Analyze how payroll deductions modify an employee's disposable income.
- Compute deductions based on gross pay.
- Recognize the difference between gross and net pay.

Unit	Lesson	Lesson Objectives
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Employee Benefits

- Compare total job benefits in relation to prospective employment.
- Explain the impact of benefits and expenses on total employment compensation.

Budgeting and Wise Spending

Personal Budget

- Decide how income affects decisions to purchase and spend.
- Prepare a budget for a given income on a weekly, monthly, and annual basis.

Financial Reserves

- Develop a plan for discretionary spending and emergencies.
- Identify essential and nonessential monthly expenses.

Keeping Financial Records

- Apply a financial record-keeping system to track debits and credits.
- Develop a system for keeping and using financial records.

Tax and Gratuities

- Calculate total price including a gratuity.
- Compute sales tax and total purchase price.

Discounts

- Calculate discounts, successive discounts and sales price of an item.

Unit Prices

- Apply unit pricing to make shopping comparisons.
- Compute unit rate.

Smart Shopper

- Analyze a receipt for possible errors.
- Calculate the total cost of online shopping purchases.
- Evaluate the various means used to sell products and services.

Making Connections: Purchasing a Laptop Computer

- Investigate laptop options based on given criteria using Internet resources.

Banking

Selecting a Bank

- Compare financial institutions in terms of personal banking needs.
- Select a financial institution using given data.

Checking Accounts

- Reconcile a checking account given a sample bank statement.
- Summarize the process of opening a checking account and making transactions.

Unit	Lesson	Lesson Objectives
		<p>Using a Debit Card</p> <ul style="list-style-type: none"> Analyze how overdraft and withdrawal fees affect account balances. Apply cash management strategies when using a debit card. <p>Savings Accounts</p> <ul style="list-style-type: none"> Make inferences into how saving money contributes to financial well-being. Summarize the process of opening a savings account and making transactions. <p>Simple Interest</p> <ul style="list-style-type: none"> Calculate simple interest. Explain simple interest and how it relates to saving money. Integrate concepts of simple interest into a money saving plan. <p>Compound Interest</p> <ul style="list-style-type: none"> Calculate compound interest. Explain compound interest as it relates to saving money. Integrate concepts of compound interest into a money saving plan. <p>Other Bank Accounts</p> <ul style="list-style-type: none"> Compare various savings accounts. Identify the benefits of online banking. Solve problems related to bank account transactions. <p>Government Agencies</p> <ul style="list-style-type: none"> Explain how government agencies regulate financial markets. Investigate how agencies that regulate financial markets protect investors.
		<p>Paying Taxes</p> <p>Tax Basics</p> <ul style="list-style-type: none"> Identify different types of taxes. Use given data to solve problems related to taxes. <p>Social Security and Medicare</p> <ul style="list-style-type: none"> Analyze the impact of Social Security and Medicare taxes on income. Explain the overall purposes and structure of the Social Security and Medicare programs. <p>Personal Income and Property Taxes</p> <ul style="list-style-type: none"> Recognize how revenue from property taxes is used by state and local governments. Use given data to determine how taxes modify income. <p>Tax Returns</p> <ul style="list-style-type: none"> Complete a yearly federal income tax return. Describe different methods used to file taxes.

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The Importance of Insurance**Life Insurance**

- Analyze different life insurance plans.
- Calculate life insurance premiums.

Auto Insurance

- Analyze different auto insurance plans.
- Calculate auto insurance premiums.

Health Insurance

- Analyze different health insurance plans.
- Calculate health insurance premiums.

Homeowners Insurance

- Analyze different homeowners insurance plans.
- Calculate homeowners insurance premiums.

Warranties

- Analyze the potential cost savings by purchasing an extended warranty.
- Compare the advantages and disadvantages of extended warranties.

Long-Term Investing**Investing in Stocks**

- Calculate annual stock dividends.
- Compare professional advisors and their services.
- Demonstrate how to evaluate advisors' credentials.

Buying and Selling Stock

- Calculate the proceeds from the sale of stock.
- Determine the cost of purchasing stock.
- Track and analyze changes in stock prices.

Buying Bonds

- Calculate the market price of bonds.
- Determine and evaluate the total investment in bonds.
- Identify the different types of bonds.

Stocks vs. Bonds

- Compare the risk, return and liquidity of stocks and bonds.

Mutual Funds

- Calculate profit or loss from mutual fund investments.

Unit	Lesson	Lesson Objectives
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Annuities

- Determine the future value of an ordinary annuity using a formula.
- Determine the present value of an ordinary annuity.
- Distinguish between an ordinary annuity and an annuity due.

Retirement Savings Options

- Calculate the future value of retirement plans.
- Compare and contrast different types of retirement plans.
- Interpret data to determine an effective retirement plan.

Real Estate Investments

- Analyze the potential profit in the value of real estate investments over time.
- Provide examples of real estate revenue.

Buying a House**Qualifying for a Home Loan**

- Compute the amount of down payment required to purchase a home.
- List requirements for qualifying for a home loan.

Other Costs of Buying a Home

- Estimate the closing costs associated with buying a house.

Mortgages

- Calculate a monthly mortgage payment.
- Identify the components of the mortgage payment.

Buying vs. Renting a Home

- Identify advantages and disadvantages of property ownership.
- Investigate costs associated with renting.

Home Ownership

- Compare services and costs related to homeownership.
- Compute utility costs.

Making Connections: Going Green

- Examine energy efficient and environment-friendly options for the home.

Consumer Loans**Interest Rates**

- Calculate the effective annual percentage rate based on the nominal interest rate.
- Identify the factors for determining an interest rate.

Unit	Lesson	Lesson Objectives
		Borrowing Money <ul style="list-style-type: none">Compute interest and service charges on loans.Select a financial lending institution using given data.
		Personal Loans <ul style="list-style-type: none">Compute the finance charge and monthly payment on a personal loan.Relate the role of collateral to a secured loan.
		Student Loans <ul style="list-style-type: none">Compute the finance charge and monthly payment on a student loan.Identify the features of different student loans.
		Financing a Car <ul style="list-style-type: none">Calculate costs related to buying a car.Use amortization models to investigate automobile financing.
		Leasing vs. Buying a Car <ul style="list-style-type: none">Calculate costs of leasing a vehicle.Compare buying and leasing a vehicle.
		Applying for a Loan <ul style="list-style-type: none">Compute debt-to-income ratio.Identify the factors lenders use to make loan decisions.Prepare a loan application.
		Simple Contracts <ul style="list-style-type: none">Analyze the purposes of a contract and the legal responsibilities incurred when signing a contract.Examine sample written contracts for essential components and meaning.
		Consumer Credit
		Using Credit <ul style="list-style-type: none">Compare credit plans.Evaluate the terms and conditions of credit cards.Identify types of credit plans.
		Credit vs. Cash <ul style="list-style-type: none">Analyze the impact of using a credit card as it relates to money management.Compare the advantages and disadvantages of using cash versus a credit card.
		Long Term Purchases <ul style="list-style-type: none">Calculate total cost of purchasing consumer durable goods over time.Compare the advantages and disadvantages of using a credit card to make long-term purchases.

Unit	Lesson	Lesson Objectives
Credit Scores and Reports		
Explain how credit rating is established.		
Rank sample credit scores and reports.		
Show how credit rating affects the ability to obtain a loan.		
Finance Charges		
Compare credit card finance charge calculations.		
Compute the finance charges for a credit card by different methods.		
Consumer Debt		
Paying Off Debt		
Analyze debt payment plans.		
Create a plan to pay off consumer debt.		
Debt Management		
Evaluate and use the strategies for resolving debt issues.		
Identify the warning signs of debt problems.		
Bankruptcy		
Analyze the impact of filing for bankruptcy.		
Identify the implications of bankruptcy.		
Consumer Responsibilities		
Recognize ways to maintain consumer vigilance.		
Solve problems related to predatory lending practices.		
Identity Theft		
Create a plan to control personal information and prevent identity theft.		
Identify ways of keeping credit information safe.		
Economic Principles		
The Economy and You		
Analyze how economic conditions affect income and goal attainment.		
Identify fundamental principles of the U.S. economy.		
Consumer Rights		
Assess the impact of consumer movements.		
Explain the rights of the consumer under consumer protection laws.		
Identify agencies that deal with concerns of the consumer.		
Inflation and Purchasing Power		
Calculate purchasing power based on inflation.		
Interpret consumer price index data.		

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World Economics		
<ul style="list-style-type: none"> Assess the impact of global economic events. Compare average salaries in various countries. Identify economic systems of the world. 		
Traveling Abroad		
Travel Expenses		
<ul style="list-style-type: none"> Calculate travel costs. Compare transportation and lodging costs in travel planning. 		
Converting Currency		
<ul style="list-style-type: none"> Calculate travel expenses using various currencies. Convert from one form of currency to another. 		
International Time and Temperature		
<ul style="list-style-type: none"> Calculate international travel times. Convert between Fahrenheit and Celsius using a formula. 		
International Measures of Length and Weight		
<ul style="list-style-type: none"> Apply measurement conversions. Convert units of measurement within and between systems. 		
Starting a Business		
The Business Plan		
<ul style="list-style-type: none"> Analyze the components of a business plan. Identify components of a business plan. 		
Business Income Statements		
<ul style="list-style-type: none"> Tabulate business income statements. Use data to analyze business income. 		
Break-Even Analysis		
<ul style="list-style-type: none"> Graphically determine the break-even point in producing items. Solve real-world problems involving break-even point analysis. 		
Markup and Markdown		
<ul style="list-style-type: none"> Calculate markup and markdown. Solve word problems involving percent markup and markdown. 		
Analyzing Business Data		
Using Graphs to Advertise		
<ul style="list-style-type: none"> Read and interpret data presented in various formats. Suggest data formatting to meet business needs. 		

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Data-Based Business Decisions

Read and interpret data presented in various formats.

Use data to make business decisions.

Business Summary Statistics

Calculate measures of central tendency.

Determine the effects of variability on measures of central tendency.

Probability in the Business Setting

Apply probability concepts to make informed decisions.

Determine the probability of an event.